IN THE CLAIMS:

Claim 1 (currently amended) A method for storing information in DNA ~~using a unique sequence of 4 DNA bases for representing each character of extended ASCII character set~~ comprising:

(a) providing an encryption key wherein each character of an extended ASCII character set is uniquely identified by a DNA code consisting of four (4) DNA bases;

~~(a)~~ (b) producing a synthetic DNA molecule comprising (i) an encryption DNA sequence with encrypted digital information that can be decoded with the ~~use of an~~ encryption key, and (ii) first and second primer sequences flanking the encryption DNA sequence ~~flanked on each side by a primer sequence~~; and

~~(b)~~ (c) storing the DNA molecule ~~in~~ with a storage DNA~~, which consists of a mixture of homogenous/heterogeneous DNA~~.

Claim 2 (currently amended) The method of claim 1 wherein the storage DNA is ~~genomic~~ human DNA.

Claim 3 (cancelled)

Claim 4 (original) The method of claim 1 wherein the storage DNA is synthetic.

Claim 5 (currently amended) The method of claim 1 wherein, in the encryption key, a

~~software is provided to enable all~~ 256 Extended ASCII characters are identified by DNA codes ~~to be defined in terms of DNA sequences~~.

Claims 6 - 10 (cancelled)

Claim 11 (currently amended) The method of claim 1 wherein ~~plain text/image or any~~ the digital information is encrypted ~~in terms of DNA sequences using~~ with an encryption key software.

Claim 12 (cancelled)

Claim 13 (currently amended) The method of claim 1 wherein synthesis of the synthetic DNA molecule ~~encrypted sequence(s)~~ is carried out ~~using~~ with a DNA synthesizer.

Claims 14 - 16 (cancelled)

Claim 17 (currently amended) The method of claim 1 wherein ~~SM DNA is mixed~~ the encryption DNA sequence encrypts a secret message and step (c) comprises mixing the synthetic DNA molecule with complex denatured DNA strands of human ~~genomic~~ DNA ~~of human or other organism~~.

Claim 18 (cancelled)

Claim 19 (withdrawn) A DNA molecule comprising an encrypted DNA sequence that can be decoded with the use of an encryption key, flanked on each side by polymerase chain reaction primer sequences wherein amplification of the DNA molecule and determination of the secret message DNA sequence and use of an encryption key, results in a decryption of the message.

Claims 20 and 21 (cancelled)

Claim 22 (new). A method for storing information in DNA, comprising:

(a) providing an encryption key wherein each character of an extended ASCII character set is uniquely identified by a DNA code consisting of four (4) DNA bases;

(b) producing a plurality of synthetic DNA molecules, each of the plurality of synthetic DNA molecules comprising an encryption DNA sequence flanked by primers, the encryption DNA sequences of the plurality of synthetic DNA molecules together encrypting a message that can be decoded with the encryption key, wherein the encryption sequence of each of the plurality of DNA molecules encodes a different portion of the message; and

(c) storing the DNA molecule with a storage DNA.

Claim 23 (new). The method of claim 22, wherein the primers of each of the plurality of DNA molecules is different from the primers of each of the other plurality of DNA molecules such that, when the encrypted message is decoded with the encryption key, the primers provide an indication of the order in which each portion of the message should be read.

Claim 24 (new). The method of claim 23, wherein the primers of each of the plurality of synthetic DNA molecules comprise a header primer and a tail primer, wherein the tail primer of each of the plurality of DNA molecules provides an indication that either (a) the message is complete or (b) another portion of the message remains to be decoded.

Claim 25 (new). The method of claim 24, wherein the header primer of each of the plurality of synthetic DNA molecules provides information as to the order in which each portion of the message should be read.

Claim 26 (new). The method of claim 22, wherein the encryption key comprises an array of 256 DNA codes consisting of four (4) DNA bases each of which uniquely identifies an ASCII character.

Claim 27 (new). The method of claim 26, comprising:

(i) encrypting input information made up of a plurality of characters by matching an ASCII value of each character of the input information with one of the DNA codes to produce an encrypted sequence;

(ii) fragmenting the encrypted sequence into a plurality of portions and synthesizing respective DNA encryption sequences comprising each of the portions;

(iii) flanking each of the encryption DNA sequences with a header and tail primer to form the synthetic DNA molecules; and

(iv) mixing the synthetic DNA molecules with complex denatured strands of DNA.

Claim 28 (new). The method of claim 26, wherein the encryption key comprises the encryption key of Fig. 3 of the drawings.

Claim 29 (new). The method of claim 26, further comprising

(i) isolation and amplification of the plurality of synthetic DNA molecules by a polymerase chain reaction;

(ii) sequencing each of the plurality of synthetic DNA molecules; and

(iii) decoding the message using the encryption key.

Claim 30 (new). The method of claim 1, comprising:

(i) encrypting the digital information by matching an ASCII value of each character of the digital information with one of the DNA codes to produce an encrypted sequence;

(ii) synthesizing the encryption DNA sequence comprising the encrypted sequence;

(iii) flanking the encryption DNA sequence with a header and tail primer to form the synthetic DNA molecule; and

(iv) mixing the synthetic DNA molecule with complex denatured strands of DNA.

Claim 31 (new). The method of claim 30, further comprising

(i) isolation and amplification of the synthetic DNA molecule by a polymerase chain reaction;

(ii) sequencing the synthetic DNA molecule; and

(iii) decoding the digital information using the encryption key.

Claim 32 (new). The method of claim 1, wherein the encryption key comprises the encryption key of Fig. 3 of the drawings.